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09/242,772 06/25/99 VAN DE VEN

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EXAMINER

WILDER, C

ART UNIT

PAPER NUMBER

1655

14

DATE MAILED:

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/242,772

Applicant(s)
Van De Ven, W. et al.

Examiner
CB Wilder

Group Art Unit
1655



☒ Responsive to communication(s) filed on Oct 2, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 28, 29, 32-34 (a)-(d), 35 and 47 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 28, 29, 32-34 (a)-(d), 35 and 47 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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FINAL ACTION

1. Applicant's amendment, filed October 2, 2000 (Paper No. 13), is acknowledged. Claims 28, 29, 33 and 47 have been amended. Claims 28, 29, 32-34 (a)-(d), 35 and 47 are pending. The arguments have been thoroughly reviewed but are found not persuasive for the reasons that follows. Any rejection not reiterated in this action have been withdrawn as being obviated by the amendment of the claims.

This Action is made FINAL.

2. The text of those sections of Title 35, U. S. Code not included in this action can be found in a prior Office Action.

Previous Rejections

3. The objection to the specification and Figures are maintained. The claim rejection under 35 U.S.C. 101 drawn to claims 28, 29, 32-34(a)-(d), 35 and 47 are withdrawn in view of Applicant's arguments. The claim rejection under 35 U.S.C. 112 first paragraph drawn to claims 28, 29, 32, 33, 34 (a)-(d), 35 and 47 as lacking enablement is maintained. The claim rejection under 35 U.S.C. 112 first paragraph drawn to claims 28, 29, 32, 33, 34 (a)-(d), 35 and 47 as lacking adequate written description is maintained. The claim rejections under 35 U.S.C. 112 second paragraph drawn to claims 28, 29, 33, 34(a)-(d), 35 and 47 are withdrawn in view of Applicant's amendments. The prior art rejection under 35 U.S.C. 102(b) drawn to claims 33 and 47 as being anticipated by Kraus et al. is maintained. The prior art rejection under 35 U.S.C. 102(a) drawn to claims 28 and 29 as being

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anticipated by Kas et al. is withdrawn in view of Applicant's arguments concerning the availability date of the reference (which falls after the priority date of the claimed invention) and submission of a declaration under 37 CFR 1.132.

Declaration under 37 CFR 1.132

4. The declaration under 37 CFR 1.132 filed October 2, 2000 is sufficient to overcome the prior art rejection under 35 U.S.C. 102(a) directed to claims 28 and 29 based upon Applicant's evidence establishing authorship of the prior art reference of Kas et al. Genbank Accession No. U65002.

Claim Rejections - 35 USC § 112, Lack of Enablement

5. Claims 28, 29, 32, 33, 34 (a)-(d), 35, and 47 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the cDNA sequence of PLAG1 gene, it does not reasonably provide enablement for an isolated nucleic acid wherein the nucleic acid is one of an oligonucleotide, a polynucleotide and a gene having a sequence of at least a part of the PLAG1 gene and degenerate sequences thereof. The specification does not reasonably provide enablement for a nucleic acid having homology with the zinc finger domains of the PLAG1 gene, or the complementary strand thereof, including modified, degenerate or elongated versions of both strands. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with the claims. The first paragraph of section 112 requires the specification describe how to make and use the invention.

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There are many factors to be considered when determining whether there is sufficient evidence to support determination that a disclosure does not satisfy the enablement requirements and whether any necessary experimentation is undue (See *In re Wands*, 858 F. 2d 731, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). These factor include, but are not limited to:

Quality of Experimentation Necessary:

The claimed invention is drawn to an isolated nucleic acid wherein the nucleic acid is one of an oligonucleotide, a polynucleotide and a gene having a sequence of at least a part of the PLAG1 gene sequences complementary thereto and degenerate sequence thereof. At page 4 of the specification, the Applicant discloses that the PLAG1 gene is an oncogene and that aberrations in the gene usually leads to a benign tumor. At page 41 of the specification, the Applicant discloses genomic organization of the PLAG1 gene including regulatory regions of the PLAG1 gene e.g. introns, exons, coding and non-coding regions. Although members of the PLAG gene family have been cloned and characterized in the prior art, the Applicant fails to describe an isolated nucleic acid having a sequence comprising a part of the PLAG1 gene or gene comprising a part of the PLAG1 gene or degenerate sequences thereof. The specification does not discloses any of the various substitutions, insertions or deletions that are encompassed by the gene or degenerate sequences thereof. Additionally, the specification fails to provide information to enable one of ordinary skill in the art to make or used the claimed nucleic acid using the large number of undisclosed nucleotide variations encompassed by the claims. In the first Example, the Applicant discloses directional chromosome walking studies wherein yeast artificial chromosome clones (YACs) are isolated and

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screen followed by methods of fluorescence *in situ* hybridization for chromosome mapping studies. In the second Example and subsequent Examples, the Applicant discloses identification of a member of the PLAG gene family using classical molecular biology techniques that are well known in the prior art. The Examples also discloses wherein probes and primers specific for the PLAG1 gene are utilized in methods of amplification and blotting to detect regions of the PLAG1 gene associated with tumor formation and growth. Nowhere in the Examples does the Applicant provide information to enable one of ordinary skill in the art to isolate a nucleic acid comprising a part of the PLAG1 gene, or to isolate a gene comprising a sequence having a part of the PLAG 1 gene or any degenerate sequences thereof. As to the quality of experimentation required, one of skill in the art would have to design an experimental procedure to isolate a nucleic acid wherein the nucleic acid sequence is an oligonucleotide, a polynucleotide and a gene having a part of the PLAG1 gene and degenerate sequences thereof that is commensurate with the entire scope of the claims.

II. *Amount of Direction and Guidance*

The specification does not provide an isolated nucleic acid wherein the nucleic acid sequence is an oligonucleotide, a polynucleotide and a gene having at least part of the PLAG1 gene and a degenerate sequence thereof that bears a reasonable correlation to the entire scope of the claims. The examples starting at page 11 lack information concerning how to isolate any PLAG gene or how to isolate an oligonucleotide, polynucleotide, or gene comprising a part of the PLAG 1 gene or degenerate sequences thereof. The examples provided lack information concerning the size and composition of the nucleic acid sequence claimed to be associated with the PLAG 1 gene or

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information concerning nucleotide variations encompassed by the degenerate sequences thereof. Furthermore, it is not clear what algorithms or parameters have been used to identify homology between the claimed nucleic acid sequence and the zinc finger domains of the PLAG1 gene, including modified, degenerate or elongated versions of both strands of the gene. Since the specification has not adequately identified the PLAG1 gene, it cannot be determined whether the claimed isolated nucleic acid sequence is indeed a sequence comprising a part of the PLAG1 gene or some other gene. Therefore, the claimed invention provides insufficient guidance and directions for one skilled in the art to make and use the claimed invention without undue experimentation.

III. Presence and Absence of Working Examples

The specification of the claim invention lacks proper working examples. starting at page 11, the specification discloses isolation and analysis of yeast artificial chromosome clones in chromosome walking studies. At page 32, the specification discloses general methods for identifying a member of the PLAG family in salivary glands. At page 53 and 54, the Applicant disclose identification of a PLAG2 gene using classical molecular biology techniques. Beginning at page 56, the Applicant discloses diagnostic test for pleomorphic adenomas of salivary glands using PLAG1-specific primers. At page 59, the Applicant discloses using a PLAG2 gene as a diagnostic marker for chromosome anomalies. At page 60, the Applicant discloses the use of animal models involving PLAG1 as tools in *in vivo* therapeutic drug testing. The Examples however fail to adequately disclose how to isolate the claimed nucleic acid sequence comprising at least a part of the PLAG1 gene or a gene having a sequence comprising a part of the PLAG1 gene or degenerate sequences thereof. Merely

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making reference to the PLAG1 gene, probes and primers of the PLAG1 gene or a PLAG2 gene as a member of the PLAG1 family as being encompass in the invention does not enable the practitioner to reproduce the results as reported in the specification.

IV. Nature of the Invention

The nature of the invention is an isolated nucleic acid wherein the nucleic acid is one of an oligonucleotide, polynucleotide, and a gene having a sequence comprising at least a part of the PLAG1 gene and degenerate sequences thereof. The full scope of the claimed invention is not reproducible due to lack of guidance presented in the Examples beginning at page 11. As noted, the specification does not properly disclose an isolated nucleic acid as one of a gene having a sequence comprising at least a part of the PLAG1 gene or degenerate sequences thereof that bears a reasonable correlation to the entire scope of the claims.

V. Level of predictability and unpredictability in the art

The specification has not enabled an isolated nucleic acid wherein the nucleic acid is a gene having a sequence comprising a part of the PLAG1 gene or degenerate sequences thereof. Although certain relevant techniques useful to the claimed invention are known in the prior art, the prior art does not teach an isolated nucleic acid as set forth in the claimed invention.

Therefore, for all of the forgoing reasons, undue experimentation is necessary for one of skill in the art to obtain the claimed invention.

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Claim Rejections - 35 USC § 112 first paragraph: Lack of adequate written description

7. Claims 28, 29, 32, 33, 34 (a)-(d), 35, and 47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed invention is drawn to an isolated nucleic acid wherein the nucleic acid is one of an oligonucleotide, a polynucleotide and a gene having a sequence of at least a part of the PLAG1 gene, sequence complementary thereto and degenerate sequences thereof. In Figure 4A of the specification, the Applicant discloses the cDNA nucleotide sequence of the PLAG1 gene and page 41 of the specification, the Applicant discloses genomic organization of the PLAG1 gene including regulatory regions, i.e., introns, exons, coding and non-coding regions. The specification fails to describe an “isolated nucleic acid being a gene having a sequence comprising at least a part of the PLAG 1 gene or degenerate sequences thereof” which encompasses a large genus of genes and sequences that is not described or disclosed. Additionally, the specification fails to adequately described the various nucleotide variations, such as substitutions, insertions, deletions, nonsense or frameshift mutations that are encompassed by the gene and by the recitation of degenerate sequences thereof. Each of the claimed invention is a genus for which a representative number of species for each genus must be disclosed to meet the written description requirement of 112, first paragraph. As set forth by the Court in *Vas Cath Inc. V. Mahurkar*, 19 USPQ2d 1111, the written description must convey to one of skill in the art “with reasonable clarity” that as of the filing date Applicant was in possession of the claimed invention.

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Absent a written description disclosing a representative number of the species of the isolated nucleic acid and macromolecule of claims 28, 29, 32, 33, 34 (a)-(d), 35, and 47 it has not been demonstrated "with reasonable clarity" that Applicant was, in fact, "in possession of the claimed invention" at the time the application for patent was filed.

8. Applicant arguments filed October 2, 2000 (Paper No. 13) have been fully considered. The Annex Applicant made reference to was not found in the case. Nonetheless, the arguments were not found persuasive. Applicant traverses the rejections on the following grounds: Applicant argues that "with regards to enablement for "at least part of the PLAG1 gene", pages 47 and 48 and Figure 4 of the specification refer to different regions and fragments (zinc fingers, nuclear localization signals, serine-rich carboxyl-terminal part, activation domains interacting with other proteins) of PLAG1". Applicant further states that the nucleotide sequences and amino acid sequences of PLAG1 and parts thereof are explicitly enabled in the specification". Applicant argues that "it is therefore believed that the person skill in the art, reading the specification and Examples 1 to 12 would be able to repeat and use the invention. Applicant continues by stating that "at page 7, line 1 of the current Office Action, the Examiner states that the present invention makes use of classical molecular biological techniques that are well known in the prior art". Applicant further argues that "once a sequence of a new gene and specific regions or fragments therein have been characterized, it would have been obvious to use classical molecule biological techniques to make use of part of the new gene". Applicant argues that "with regard to enabling "degenerate sequences thereof" techniques for the degeneration of the genetic code have been known for a long time in the art, so that it is not necessary to provide explicit

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information in the specification on how to make degenerate sequences of the fully disclosed nucleic acid sequence of the present invention. Applicant concludes that "it is believed that the claims, which refer to part of the PLAG1 gene or sequences complementary thereto, are enabled by the specification and by what is known to the person skilled in the art.

9. These arguments have been fully reviewed but they are not found persuasive for the reasons that follows: The courts have established that patent examination the pending claims must be interpreted as broadly as their terms reasonable allow" *In re Zletz*, 893 f. 2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). Therefore, in response to Applicant's arguments that "at least a part of the PLAG gene" is enabling" because the specification refers to different regions and fragments of the PLAG1 gene, the Examiner would like to point out to Applicant that the instant claims as written encompasses not only those different regions and/or fragments as recited in the specification at page 47 and 48, but also encompasses a number of other regions and elements of a gene such as e.g., enhancers, silencers, cis and trans elements, promoter sequences, splice junctions, introns, exons and etc. which have **not** been described or disclosed anywhere in the specification. Additionally the recitation of "complementary sequences thereof" can mean a polynucleotide sequence complementary to a small region of a given DNA or alternatively, complementing an entire region, with a loop structure in the middle of the full length sequence or alternatively, complementing an entire region with no loop structure present. There is no disclosure anywhere in the specification describing any sequences complementary to the PLAG1 gene. Alternatively, a degenerate sequence thereof can mean any number of variations to the genetic code of the gene which may differ from organism to

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organism. The specification additionally does not provide any enabling disclosure describing any of the plethora of variations that are encompassed by the recitation of “a degenerate sequence thereof”. Furthermore, “a part of the PLAG1 gene” encompasses a number of mutations such as insertions, deletions, frameshift, truncation, reversions, substitutions and etc which have not been disclosed. Therefore, the specification and claims leave one skilled in the art to embark on experimentation of his own since the specification has not addressed any of the issues noted above. A reasonable correlation must exist between the scope of the claims and the scope of enablement set forth, and it cannot be predicted from the disclosure how to make and use every aspect of the gene as claimed. Therefore in view of the speculative nature of the invention, absence of working example, lack of direction and guidance and lack of predictability in the art as discussed previously, it would require undue experimentation for one skilled in the art to practice the invention as claimed.

With regards the lack of written description, *Vas-Cath Inc V. Mahurkar*, 19 USPQ2d 1111, clearly states that Applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the “written description” inquiry, *whatever is now claimed* (see *Vas-Cath* at page 1117). The specification does not “clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed” (see *Vas-Cath* at page 1116).

Benjamin Lewin (Genes IV, Oxford University Press, New York, 1990, page 810) defines a gene as the segment of DNA involved in producing a polypeptide chain, it includes regions preceding and following the coding region (leader and trailer) as well as intervening sequences (introns) between

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coding segments (exons). In view of the foregoing, an isolated nucleic acid being a gene having a part of the PLAG1 gene or a complementary sequence thereof or a degenerate sequence thereof is not described or disclosed. Furthermore, the claims, as broadly written, read on various nucleotide variations as previously mention. Therefore, regardless of the complexity or simplicity of the method of isolation, one skilled in the art would not recognize the structure of the isolated nucleic acid sequence without undue experimentation or the structure of the encompassed polypeptide until reduction to practice has occurred.

Furthermore, in *The reagent of the University of California v. Eli Lilly* (43 USPQ2d 1398-1412), the court indicated that while Applicants are not required to disclose every species encompassed by a genus, the description of a genus is achieved by the recitation of a representative number of nucleotide sequences, falling within the scope of the claimed genus. The specification has not disclosed a representative number of species of the isolated nucleic acid and macromolecule of claims 28, 29, 32-34(a)-(d), 35 and 47. Accordingly, this rejection is maintained.

Claim Rejections - 35 USC § 102(b)

10. Claims 47 and 33 are rejected under 35 U.S.C. 102(b) as being anticipate by Kraus et al. (Genomics, 23, pages 272-274, December 1994). Claim 47 is broadly drawn to a nucleic acid in isolated form wherein the nucleic acid is one of an oligonucleotide, a polynucleotide and a gene having a sequence of at least a part of the PLAG 1 gene, sequences complementary thereof and degenerate sequences thereof. Kraus et al. discloses an isolated nucleotide sequence wherein the

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nucleic acid is an oligonucleotide and a polynucleotide fragment having a sequence of at least a part of a gene of the PLAG1 subfamily (page 272, column 2, last paragraph bridging column 1, page 273, lines 1-5, see also Figure legend 1.). Therefore, the claimed invention is anticipated by the reference of Kraus et al.

Claim 33 is drawn to a macromolecule comprising a nucleic acid in isolated form, comprising one of an oligonucleotide, a polynucleotide and a gene having a nucleotide sequence of at least a part of a T-gene selected from the group consisting of the PLAG1 subfamily of zinc finger protein genes, the CTNNB1 gene and fusion protein, or complementary degenerate versions of the nucleotide sequence. Kraus et al. discloses this embodiment (page 272, column 2, last paragraph bridging column 1, page 273, lines 1-5, see also Figure legend 1.)

11. Applicant traverses the rejection on the following grounds: Applicant states that “the inventors have performed a BLAST (Basic Local alignment Search Tool) search on the nucleotide and amino acid level and did not find any significant similarity between the PLAG1 of the invention (7313 bp) and CTNNB1 in Kraus et al. (See annex 3)”. The Applicant concludes that “it is believed that the nucleic acid of Kraus et al. does not anticipate the nuclei acid of the present invention”.

12. The argument has been fully considered but is not found persuasive for the reasons that follows: The claims, as broadly written, do not limit the isolated nucleic acid to any specific conditions or sequence. Therefore, any sequence comprising a few bases similar to, or complementary thereto or is a degenerate sequence thereof of the claimed PLAG1 gene is deemed significant and sufficient. This includes any variations or mutations of the sequence as well. To

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reiterate, the Applicant has not limit the scope of the claim invention. Therefore, Applicant has not provided sufficient evidence to overcome this rejection. Accordingly, this rejection is maintained.

Claim Rejections - 35 USC § 102(a)

13. Claims 47, 32, 33, 34 (a)-(d), and 35 are rejected under 35 U.S.C. 102(a) as being anticipated by Nollet et al. (Genomics March 1996). Regarding claim 47, Nollet discloses a nucleic acid in isolated form wherein the nucleic acid is an oligonucleotide and a polynucleotide fragment having a sequence of at least a part of a gene in the PLAG1 gene subfamily (page 414, "Materials and Method", lines 1-18 bridging top of column 2, lines 1-19). Therefore, the claimed invention is anticipated by the reference of Nollet et al.

Claim 32 and 35 are drawn to an embodiment of claim 47 and 33, wherein the nucleic acid or derivative is labeled. Nollet discloses this embodiment (Page 414, column 2, lines 25-26 and 59-60).

Claim 33 is drawn to a macromolecule comprising a derivative of a nucleic acid in isolated form, comprising one of an oligonucleotide, a polynucleotide, and a gene having a nucleotide sequence of at least a part of a T-gene selected from the group consisting of the PLAG subfamily of zinc finger proteins genes, the CTNNB1 gene and fusion thereof, or complementary or degenerate versions of the nucleotide sequence. Nollet discloses this embodiment (Page 418, bottom of column 1 bridging top of column 2, lines 1-24).

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Claim 34 is drawn to an embodiment of claim 33, wherein the derivative is selected from the groups consisting of: (a) a transcript corresponding to the nucleic acid, (b) cDNA corresponding to the nucleic acid (c) sense or antisense DNA corresponding to the nucleic acid and (d) a nucleic acid including a gene, or a derivative thereof, isolated by using at least a part of a gene as one of a probe or a primer. Nollet discloses a macromolecule wherein the derivative is a nucleic acid including a gene, or a derivative thereof, isolated by using at least a part of a T-gene as one of a probe or primer (page 414, "Materials and Method", lines 1-18 bridging top of column 2, lines 1-19).

14. Applicant traverses the rejection on the following grounds: Applicant states that "the inventors have performed a BLAST (Basic Local alignment Search Tool) search on the nucleotide and amino acid level and did not find any significant similarity between the PLAG1 of the invention (7313 bp) and CTNNB1 in Nollet et al. (3362 bp)". The Applicant concludes that "it is believed that the nucleic acid of Nollet et al. does not anticipate the nucleic acid of the present invention".

15. The argument has been fully considered but is not found persuasive for the reasons that follows. The claims, as broadly written, do not limit the isolated nucleic acid to any specific conditions or sequence. Therefore, any sequence comprising a few bases similar to, or complementary thereto or is a degenerate sequence thereof of the claimed PLAG1 gene is deemed significant and sufficient. This includes nucleotide variations and mutations of the gene sequence. To reiterate, the Applicant has not limit the scope of the claim invention. Therefore, Applicant has not provided sufficient evidence to overcome this rejection. Accordingly, this rejection is maintained.

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Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Cynthia Wilder whose telephone number is (703) 305-1680. The Examiner can normally be reached on Monday through Thursday from 7:00 am to 5:30 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Exr.'s supervisor, W. Gary Jones, can be reached at (703) 308-1152. The official fax phone number for the Group is (703) 308-4242. The unofficial fax number is (703) 308-8724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed the Group's receptionist whose telephone number is (703) 308-0196.

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A handwritten signature in cursive script, reading "Cynthia B. Wilder".

Cynthia B. Wilder, Ph.D.

December 20, 2000

A handwritten signature in cursive script, reading "W. Gary Jones".

W. Gary Jones
Supervisory Patent Examiner
Technology Center 1600